MASSACHUSETTS BIOMEDICAL INITIATIVES

World Class Incubators for World Class Science

January 18, 2019

The Senate Committee on Ways and Means
24 Beacon Street, Room 212
Boston, MA 02133

The House Committee on Ways and Means
24 Beacon Street, Room 243
Boston, MA 02133

Dear Members & Staff:

Founded in 1985, Massachusetts Biomedical Initiatives (MBI) was the first biotechnology incubator in the Commonwealth of Massachusetts and has proudly incubated over 125 companies that employ over 800 people in Massachusetts. The life and health sciences are flourishing in the Commonwealth with Biopharma industry employment up 28% over the past ten years, according to MassBIO.

MBI is proud to be partnering with Worcester State University (WSU) and Quinsigamond Community College (QCC), with your support, on several initiatives to increase diversity in the fields of life sciences and biotechnology in the Commonwealth. Over the course of the past summer and fall, the partners have worked to plan, develop, and begin enrollment for a comprehensive series of programs to accomplish this goal. As a result of this planning, the programs will begin in earnest during the spring semester, with a planned completion date of June 30, 2019. The high school programs began a few weeks ago and over 110 students have been engaged to date. The college semester is just beginning, and more data will be available in our next report.

The program focuses on a series of goals aimed at building a diverse pipeline into the life science and biotechnology fields by overcoming existing gaps and challenges faced by these populations. Those goals include: 1) increasing the number of under-represented high school students entering STEM, 2) increasing student success for STEM majors in college, 3) providing student supports throughout degree programs, 4) facilitating workforce entry for foreign-born adults with STEM credentials, 5) expanding institutional capacity by engaging employers and other external parties, 6) connecting under represented students to internships with local employers, and 7) ensuring compliance and reporting with MOBD's goals and procedures to ensure program success.

Per the legislation, the project partners have secured matching funding to leverage the success of this program. Enclosed you should find a copy of the commitment letter, proposal, budget and targeted metrics for the program along with a timeline for completion.

We are very grateful for the opportunity to partner with the Commonwealth on this important project which will help support the regional growth of the life sciences and biotechnology fields in Central Massachusetts. Please do not hesitate to reach out with any questions about this program.

Sincerely,

Jon Weaver
President & CEO

MASSACHUSETTS BIOMEDICAL INITIATIVES
World Class Incubators for World Class Science

Creating Pathways for a Diverse Life & Health Science Workforce

A Partnership of Massachusetts Biomedical Initiatives (MBI),
Quinsigamond Community College (QCC), Worcester State University (WSU), &
The Commonwealth of Massachusetts Office of Business Development (MOBD)
Fiscal Year 2019

Introduction

Massachusetts has experienced tremendous economic growth within the STEM fields. Specifically, BioPharma employment within the Commonwealth has increased by 28% over the past ten years (MassBIO). In order to keep up with demand, Massachusetts will need to expand its workforce pipeline. The Massachusetts Department of Higher Education noted "If African-American and Latino/a adults possessed college degrees at the same rate as white adults the state would easily meet its need for more college graduates by 2025".

MBI in partnership with Quinsigamond Community College, Worcester State University, and the Massachusetts Office of Business Development strive to close the workforce diversity gap within the STEM fields. The enclosed proposals outline seven goals for closing that gap beginning at the high school level and continuing through college and connections to the life and health sciences workforce.

Program	Total
Goal 1: Increase # of under-represented high school students entering STEM	$89,632.50
Goal 2: Increase student success for STEM majors in college	39,822.50
Goal 3: Provide Student Supports throughout degree program	25,500.00
Goal 4: Facilitate workforce for foreign-born adults with STEM credentials	35,275.00
Goal 5: To expand institutional capacity through focused engagement with employers, WPS, teachers, and college faculty	22,270.00
Goal 6: To connect under-represented students to internships with local employers	25,000.00
Goal 7: To oversee compliance and reporting with MOBD's goals and procedures	12,500.00
Totals	**$250,000.00**

Matching Funds

The legislation requires a private, external match. Worcester State University will provide appropriate matching funds through a variety of sources as outlined in the joint proposal. MBI will provide matching funds through its endowment and rental income.

QCC & WSU Proposal

Enclosed is a proposal outlining Worcester State University & Quinsigamond Community College's proposed plan to achieve workforce goals 1 through 5. MBI chose to partner with these sub-grantees due to their continued success in engaging and educating under-represented populations in the STEM fields. This program will allow these important organizations to expand their STEM offerings to under-represented students in an effort to fill the impending life & health science workforce shortages.

MBI Workforce Connectivity Proposal

As a non-profit organization, Massachusetts Biomedical Initiatives (MBI) serves a unique intermediary role between academia, government, and the private sector. MBI will utilize its connections in industry to identify internship opportunities for under-represented students. MBI will educate at least five local employers on the Massachusetts Life Science Center's Internship Challenge program and best practices in utilizing interns to maximize the value for the company and students. MBI will utilize its partnership with MassBIO to identify potential employers. MBI will coordinate visits with local employers to inform them of the local workforce pipeline efforts being undertaken by WSU & QCC and seek engagement from the companies through internship with hopes for employment within the life & health science industries.

MBI will also oversee the program from an administrative oversight component. MBI will work with the respective sub-grantees to collect relevant reporting data to meet MOBD's requirements and ensure the sub-grantees are meeting the goals of the proposal. MBI will also submit payment requests to MOBD in a timely manner and then issue sub-grants to the respective organizations.

Enable Life Sciences utilizes interns from local community colleges through the MLSC Internship Challenge

Increasing Diversity in STEM

Introduction

Quinsigamond Community College (QCC) and Worcester State University (WSU) will collaborate to increase diversity in the fields of life sciences and biotechnology in the Commonwealth. Together we will work across the continuum to recruit and prepare high school and adult students for careers in STEM; to support and graduate greater numbers of diverse college students engaged in STEM fields; and to assist foreign-born adult students with STEM backgrounds with entry into the workforce.

Through this effort, QCC and WSU, in collaboration with Massachusetts Biomedical Initiatives (MBI), will seek specifically to strengthen its partnership with the Worcester Public Schools. With its diverse population of learners (African-American 15.9%; Asian 7.1%; Hispanic 42.6%; Multi-Race, Non-Hispanic 4.2%), we believe that an increasing number of racially and ethnically diverse and first generation WPS students can be encouraged and supported to pursue STEM programs and careers. Demographics from the current cohort of WPS Early College Program students are encouraging (Asian 28%; Black 30%; Other 10%; Hispanic 13%; White 31%). In addition, both QCC and WSU seek to strengthen and expand campus-based services for current and aspiring STEM students.

Institutional Partnership

Using existing programs at the participating institutions, we propose to expand the number of under-represented populations entering into the biomedical field through a variety of targeted strategies. This will allow us to scale-up the capacity within each of these existing programs to incrementally expand their outreach to these communities and support structures that will allow students to be prepared to enter into the biomedical and related STEM workforce. The following programs will participate:

<u>Worcester State University</u>

Worcester State University will utilize The Latino Education Institute (LEI), Aisiku Stem Center and the Intensive English Language Institute (IELI) to carry out activities for this initiative.

The LEI was founded in 2000 by a partnership of community leaders to provide outcomes-based development programs in education, literacy, leadership, civic engagement and health to improve the academic achievement and well-being of Latino students (grades K-16) and their families. Each year the LEI reaches over 2,000 youth and their families with education and enrichment programs and hundreds more through city-wide partnerships with the Worcester Public School district as well as other community-based agencies.

The Aisiku STEM Center enhances student learning and success in science, technology, and math fields by facilitating interdisciplinary collaboration and initiatives. Representatives from STEM-related departments (biology; chemistry; computer science; earth, environment, and physics; and mathematics) work diligently on initiatives aimed at increasing student retention and providing pathways for academic excellence in these programs.

The Intensive English Language Institute at WSU helps non-native English speakers to gain the language and social literacy they need to succeed. The student body includes recent immigrants living in the

greater Worcester region and individuals on a variety of visas, including F-1 student visas. Students are from more than 100 countries and range in age from 16 to 70 years old.

Quinsigamond Community College

Quinsigamond Community College will strengthen and expand several key programs and student success strategies in an effort to recruit, retain, and graduate more students in degree and certificate programs specifically related to the biomedical/biotechnology industry sector. These include the Biotechnology Certificate; The General Studies-Biotechnology Option; Liberal Arts—Biology and Chemistry Options and Engineering-Biomedical Engineering Option.

The programs and strategies targeted for focused expansion include QCC's Early College Pathways/Early College Program; QCC Mentoring; General Academic Areas/Math Center/Supplemental Instruction; Adult Community Learning Center, Career Services and the STEM Starter Academy. In addition, QCC proposes to expand capacity through faculty development and through concentrated outreach efforts to the biomedical/biotechnology employer community across the region, and to prospective students through the delivery of Family Academies in conjunction with the Latino Education Institute/Worcester State University.

Quinsigamond Community College's **Early College Pathways** enable high school students to participate in college readiness activities and credit course offerings while in their supportive high school environment. Students can earn college and high school credits simultaneously and graduate from high school with 3-12 college credits. QCC's goal is not only to increase the percentage of college ready high school graduates, but also provide students with a "head start" on earning a two to four year college degree. Since its inception in 2013, QCC has worked with over 900 students in twenty school districts across central Massachusetts. QCC is particularly proud of its signature **Early College Program, a collaborative effort with Worcester State University**, which recently received *Early College Designation* from the Baker-Polito administration. Designed to serve under-represented, first generation students, this program seeks to expand the number of WPS students concurrently enrolled in college courses from 200 to 2000 by fiscal year 2021.

QCC Mentoring connects currently enrolled students with staff, faculty, industry, and community members to create one-on-one mentoring relationships. This unique program provides extensive benefits to students, as well as professional development and networking opportunities for mentors. The program provides a way for QCC students to connect with mentors and build positive relationships to support their college experience. Students may also develop employer desired skills, gain an understanding of workplace expectations and networking to increase their likelihood of finding a rewarding career. The QCC Mentoring program hosts monthly workshops and social events for mentors and mentees throughout the year. There are currently 112 mentors and 184 students engaged in mentoring relationships.

The goal of QCC's **General Academic Areas Tutor Center/Math Center/Supplemental Instruction** is to engage students in the learning process and empower them to become independent, lifelong learners. Tutors support students in their coursework by working collaboratively, encouraging active learning, and modeling effective study and learning techniques.

QCC's **Adult Community Learning Center** (ACLC) offers adult community education classes including HiSET/GED preparation, English for Speakers of Other Languages, and Adult Career Pathways.

QCC's **Career Services** provides a wide variety of resources to assist with identifying career opportunities, finding up-to-date information on the latest job market trends, acquiring work experience, and developing job search skills for a successful transition from school to work.
QCC's **STEM Starter Academy** (SSA) is a statewide initiative to support community college efforts to inform, engage, recruit, retain, and graduate significantly more students in all STEM disciplines. The primary goal is to graduate more community students with STEM degrees and certificates so they can either enter the work force or transfer to a four-year institution. Another goal is to recruit more students into the STEM pipeline at the community colleges. At QCC the STEM Starter Academy works in a cross functional capacity with many programs on campus to increase STEM awareness, retention, enrollment and completion.

Strategies for Success

The Diversity in STEM Project proposes activities to attract, support, and graduate under-represented students into the STEM fields and STEM careers. These activities fall into four broad categories: 1) early exposure to STEM through hands-on, extracurricular activities for middle and high school students and families in conjunction with local industry and community partners; 2) student supports designed to bolster STEM students through their entire degree process; 3) facilitating entry into STEM careers for foreign-born adults with STEM credentials earned abroad, and 4) expanding institutional capacity through focused engagement with employers, WPS teachers and college faculty, and prospective students. All activities proposed below build off of existing programs and initiatives.

Exposure

High school students coming from families, cultures, and communities that do not have heavy representation of scientists, engineers, and technicians may lack the knowledge necessary to build interest in pursuing these careers.

One method of increasing interest early on is hands-on, extra-curricular activities, which have been shown to boost STEM interest and motivation. Students are exposed to activities which provide foundational knowledge about careers in STEM fields, and connections are made between academic coursework and career performance.

Engaging with families of under-represented students is also crucial to increasing awareness about STEM opportunities. Many students from family-centric cultures consider career and education decisions within the context of the family.

1. Forty additional afterschool program hours will be added to include Girls Who Code, mentorship, and STEM career exploration for middle school girls served by the LEI.

2. Thirty high school students from LEI's college access program will explore local advanced manufacturing industries and shadow employees. Students will learn to work in teams and gain other 21st century skills.

3. Two Early College Courses in STEM will be offered to 50 high school students at WSU for full credit and without charge.

4. QCC/LEI Family Academies, mini conferences targeting marginalized communities held in partnership with ethnic community brokers in multiple languages to increase awareness about education and careers in STEM. Some 100 families are expected to attend.

5. Slots for 80 WPS students will be added through the Early College Program. QCC will offer four courses that apply to the Biotechnology Technician Certificate; General Studies – Biotechnology Option; Liberal Arts Biology and/or Chemistry Options; and Engineering/Biomedical Engineering Option. These include BTT 101 Introduction to Biotechnology; MAT 100 College Algebra; MAT 122 Statistics; and MAT 123 Precalculus. This will provide students with the basic tenets of biotechnology and engage them in dialogue about the ethics, public policy issues, patent issues, and career opportunities in the field as well as develop the mathematical foundation necessary for advanced study in the field. This includes course fees; books/access codes; STEM materials; and transportation for student field trips to local companies.

6. QCC will plan/host a minimum of one industry panel and two industry tours for currently enrolled students in targeted certificate and degree programs and in the ACLC during Spring and Summer I, 2019 semesters. The target is to serve a minimum of 100 students. This program will also ensure the participation of under-represented minorities.

<u>Supporting Student Success</u>

Studies suggest upwards of 69% of community college students who enter a STEM major leave it within six years; half of these students switch to non- STEM majors and half leave the college. Hispanic and low-income students left college at higher rates than switching majors. Four year institutions face similar challenges with respect to retention and graduation for STEM majors from under-represented communities.

It is crucial that underrepresented students in STEM get the supports they need throughout the duration of their degree studies to ensure they are able to successfully enroll in and complete the classes necessary for their STEM major. The more time spent engaged with support services is associated with better outcomes in retention and graduation.

1. WSU will offer Science Scholarships for underrepresented STEM students attending WSU providing a stipend of $1,500 for the spring semester for 10 students in conjunction with resources and networking for students. Students meet twice monthly with an adviser and twice monthly as a group for presentations on topics integrating academic, social, and networking with employers.

2. Two Early College Courses in STEM at WSU will be offered to 50 high school students at WSU for full credit and without charge for a cost of (LEI/WSU and QCC/Early College).

3. WSU/ Aisiku Center will employ Peer Assisted Learning (PAL); a supplemental Instruction model developed at the University of Missouri-Kansas City to reduce the number of Ds, Fs and withdraws. The model is based on student-led, instructor-supported, group study and review

sessions run by trained student facilitators who were highly successful themselves in the course they are supporting. At WSU our PAL mentors attend the regular classroom sessions and meet with the course instructors regularly to prepare their PAL sessions. Each PAL mentor offers two PAL sessions weekly. In the spring semester of 2019, PAL anticipates to support 11 courses in the STEM disciplines and combined, these 11 represent 50 sections with 971 registered students, of who, roughly 400 would be considered from under-represented communities.

4. WSU will hold a two week summer STEM bridge program in June for 10 under-represented high school students at $845 each (tuition) plus $100 each for supplies and field trip experience.

5. QCC will augment current student support services offered through General Academic Areas Tutor Center/Math Center/Supplemental Instruction with specific focus on related STEM disciplines. This expansion will support well over 1000 students enrolled in Biology, Chemistry, Biotechnology, and Mathematics courses during 2019 Spring and Summer I semesters.

6. QCC will serve an additional 20 student through QCC Mentoring by doubling the number of biotechnology/biomedical/STEM mentors from 17 to 34 during Spring 2019.

7. QCC will award up to ten $1000 completion scholarships for STEM students experiencing financial challenges that may delay college completion.

Workforce

Foreign-born adults are more likely than natives to have earned a degree in STEM. Attracting skilled immigrants stimulates economic growth and is essential to the life sciences industry in Worcester. The inability of some refugees and immigrants to apply their relevant training and skills in local industry presents a lost opportunity both for the families of these immigrants as well the local economy. This is especially true for the population on immigrant workers who do not hold a H1-B visa. We propose the following activities to increase the use of professional and educational licenses/credentials earned in home countries.

1. Intensive English Language Institute/WSU will update and publish The Guide to Professional Licensure benefitting immigrants, who were professionals in their native countries who wish to achieve success in the United States by pursuing careers in high-need, largely STEM fields. Community workshops to navigate licensure will also be offered.

2. A Pathway to Professional Licensure advisor will be available to meet with interested individuals for a total of 20 hours through IELI/WSU.

3. Provide workforce preparation and exposure to STEM employers for 300 adult ESOL students at the WSU/LEI.

4. Students will receive mentorship and coaching from area industries. (WSU/LEI)

5. QCC ACLC teachers will design and deliver biotechnology/biomedical/STEM curriculum and engage in industry tours for up to 50 adult students participating in Adult Community Learning Center programs.

Expanding Institutional Capacity

1. QCC will offer two professional development workshops for up to twelve WPS teachers who will be implementing the Math IV curriculum. Math IV is a specially designed mathematics course offered to prepare high school students for college level mathematics. The workshops will be presented by two QCC faculty and will enable high school faculty to learn about the standards and competencies of QCC's developmental math courses as a means to prepare high school students for college level math required in targeted programs.

2. To expand QCC's capacity to deliver the BTT Introduction to Biotechnology course, a QCC faculty member will design and deliver a Train-the Trainer program for up to 10 additional faculty members.

3. In order to increase the number and diversity of biotechnology/bio-manufacturing employers engaged in these efforts, QCC proposes to hire a short-term dedicated outreach specialist to accomplish the following:
    - Up to ten new biotechnology employers partnerships will be developed/engaged actively in this initiative as mentors, work-based learning sponsors, panelist, tours, etc.
    - One STEM Industry Panel recruited/planned/delivered before May 1, 2019
    - Two STEM industry tour, recruited/planned and implemented before June 20, 2019
    - At least one meeting re: development of an apprenticeship program in biotechnology will be convened to gauge employer interest and willingness to engage in planning for a pilot cohort of apprentices in Spring or Fall 2020

Budget

WSU is providing at match of $250,000 to carry out this project through private external funding sources. These sources include The Boston Foundation ($20,000 for workforce development), NELLIE MAE ($75,000 for college access programs), Greater Worcester Community Foundation ($20,000 for family engagement), United Way of Central Massachusetts ($38,000 for afterschool programs for middle school Latinas), Balfour ($25,000 for college access), and funding for the Aisiku Stem Center for underserved students in STEM from Alumni Donor ($44,000), National Grid ($10,000) and Cornerstone Bank ($18,000).

WSU's expense total for activities proposed is $107,355. QCC's expense total for activities proposed is $105,145. Both institutions waive overhead charges for this public service initiative. MBI's expenses total $37,500 for operating costs and to work with QCC and WSU to identify students who may qualify for possible employment opportunities and/or internships.

The table below details costs associated with each activity by institution and goal.

Table 1:Project Budget	
Goal 1: Increase # of under-represented high school students entering STEM. Requested amount - $89,632.50	
Actual cost:	
WSU Total: $51,382.50 1. Hands-on STEM demonstrations (40 youth @ $15,000) 2. Explore local life sciences industries and shadow employees (30 youth @ $10,000) 3. High school students free early college STEM class at WSU (50 youth @ $12,000) 4. Family Academies (100 families @$14,000) 5. Summer Bridge Program (10 youth @ $9,450)	QCC Total: $38,250 1. Early College Program Expansion with biotechnology/mathematics courses (80 students @$40,000) 2. Industry Panels/Industry Tours (100 students @ $5000)
Goal 2: Increase student success for STEM majors in college. Requested amount - $39,822.50	
Actual cost:	
WSU Total: $10,072.50 1. PAL - Peer Assisted Learning (400 students@ $11,850)	QCC Total:$29,750 1. Augment/expand General Academic Areas Tutor Center/Math Center/Supplemental Instruction (1000 students @ $30,000) 2. Expand QCC Mentoring by doubling the number of biotechnology/biomedical/STEM mentors (17 mentees @ $5000)
Goal 3: Provide student supports throughout degree program. Requested amount - $25,500	
Actual cost:	
WSU Total: $17,000 1. Science Scholarships at $20,000	QCC Total: $8,500 1. STEM Completion Scholarships (10 STEM students @ $10,000)
Goal 4: Facilitate workforce for foreign-born adults with STEM credentials. Requested amount - $35,275	
Actual cost:	
WSU Total: $28,900 1. Update and publish guide ($12,000) 2. Pathway to Professional Licensure advisor ($5,000) 3. Workforce preparation for adult learners & coaching (300 adults @ $17,000)	QCC Total:$6,375 1. Develop and deliver ACLC curriculum in biotechnology/biomedical/STEM content and engage in industry tours (50 ACLC students @ $7500)
Goal 5: To expand institutional capacity through focused engagement with employers, WPS teachers, and college faculty. Requested amount - $22,270	
Actual cost:	
	QCC Total:$22,270 1. Two Math IV professional development workshops (12 WPS teachers; 2 QCC faculty members @ $5000) 2. Design/deliver train-the-trainer program for BTT 101 Introduction to Biotechnology (10 faculty members; 1 QCC designer @$5000) 3. Dedicated outreach specialist through June 30, 2019 (1 @ $16,200)

The difference between the actual cost and requested amount will be made up by the College and the University.

Increasing Diversity in STEM

Supplemental Information

On behalf of Worcester State University and Quinsigamond Community College we are pleased to provide supplemental information as requested by MBI. Goals, specific actions, assessment indicators, and a timeline are provided below. It is important to note that your support is supplementing rather than supplanting work currently underway at our institutions. The outcomes below are directly attributable to the MBI initiative. We look forward to working together

Goal 1: Increase # of under-represented high school students entering STEM

Action Items:

1. 40 additional afterschool program hours to include Girls Who Code, mentorship, and STEM career exploration for middle school girls served by the LEI; this is in addition to the current 128 program hours at WSU.
2. 30 high school students from WSU LEI's college access program will explore local advanced manufacturing industries and shadow employees.
3. Two Early College Courses in STEM will be offered to 50 high school students at WSU for full credit and without charge.
4. QCC/LEI Family Academies targeting marginalized communities to increase awareness about careers in STEM. Some 100 families are expected to attend.
5. WSU's two week summer STEM bridge program in June for 10 under-represented high school students
6. Up to 80 WPS students will engage in QCC's Early College Program. QCC will offer four courses that apply to the Biotechnology Technician Certificate; General Studies – Biotechnology Option; Liberal Arts Biology and/or Chemistry Options; and Engineering/Biomedical Engineering Option.
7. QCC will plan/host a minimum of one industry panel and two industry tours for currently enrolled high school students, students in targeted certificate and degree programs and in the Adult Community Learning Center programs (ACLC) during Spring and Summer 1 2019 semesters. The target is to serve a minimum of 100 students.

Assessment

1. # of students completing programs – 85% of students will complete program (169 combined WSU & QCC)
2. # of families demonstrating increased awareness – 85% of families demonstrate increased knowledge about STEM careers (85)
3. # of free college credits earned – 333 college credits earned in the STEM field (combined WSU & QCC)
4. # of businesses participating in tours/job shadowing – 10 employers in biotech and life sciences (WSU)
5. # students attending QCC industry panels / industry tours (100 QCC)

Goal 2: Increase student success for STEM majors in college

Action Items

1. WSU/ Aisiku Center's Peer Assisted Learning (PAL); a supplemental instruction model to reduce the number of Ds, Fs and withdraws. In the spring semester of 2019, PAL anticipates to support 400 under-represented students.
2. QCC will augment current student support services offered through General Academic Areas Tutor Center/Math Center/Supplemental Instruction with specific focus on related STEM disciplines. This expansion will support well over 1000 students enrolled in related science and/or mathematics courses during 2019 Spring and Summer 1.
3. QCC will serve an additional 20 student through QCC Mentoring by doubling the number of biotechnology/biomedical/STEM mentors from 17 to 34 during Spring 2019.

Assessment

1. # of students retained/completed thru awarded scholarships (5 WSU / 10 QCC)
2. 80 % of students pass the course in which they received tutoring/supplemental instruction (combined WSU & QCC)
3. # additional students mentored by biotech professionals (17 QCC)

Goal 3: Provide student supports throughout degree programs

Action Items

1. WSU will offer Science Scholarships for underrepresented STEM students
2. QCC will award up to ten $1000 completion scholarships for STEM students experiencing financial challenges that may delay college completion.

Assessment

1. # of students retained/completed thru awarded scholarships (5 WSU / 10 QCC)

Goal 4: Facilitate workforce entry for foreign-born adults with STEM credentials

Action Items

1. Intensive English Language Institute/WSU will update and publish The Guide to Professional Licensure benefitting immigrants, who were professionals in their native countries seeking careers in high-need STEM fields. Community workshops to navigate licensure will also be offered.
2. A Pathway to Professional Licensure advisor will be available to meet with interested individuals for a total of 20 hours through IELI/WSU.
3. Provide workforce preparation and exposure to STEM employers for 300 adult ESOL students at the WSU/LEI.
4. Students will receive mentorship and coaching from area industries. (WSU/LEI)

5. QCC ACLC teachers will design and deliver biotechnology/biomedical/STEM curriculum and engage in industry tours for up to 50 adult students participating in Adult Community Learning Center programs. (QCC)

Assessment

1. # of foreign-born STEM professionals assisted in the re-credentialing process (25 WSU)
2. # of foreign-born professionals receiving workforce preparation and exposure to STEM industry mentors (100 WSU)
3. # of Adult Community Learning Center students that participate in biotechnology / biomedical / STEM curriculum (50 QCC); # of students who express increased interest in pursuing biotechnology/biomedical/STEM (via before/after surveys); # of these students who apply for admission submitted to QCC for enrollment in a STEM area
4. # of QCC ACLC students who participate in industry tours/panels (50 QCC)

Goal 5: Expand institutional capacity through focused engagement with employers, WPS teachers, and college faculty

1. Up to 12 WPS teachers who will be implementing the Math IV curriculum will participate in professional development workshops designed to enable them to learn about the standards and competencies of QCC's developmental math courses as a means to prepare high school students for college level math required in STEM programs.
2. Up to 10 QCC faculty members will attend a "train the trainer" program for the BTT 101 "Introduction to Biotechnology" course to increase the number of students QCC can accommodate in this foundational curriculum.
3. A dedicated outreach specialist will work to broaden and deepen industry relationships

Assessment

1. # of WPS teachers participating in Math IV workshops (12 QCC)
2. # of QCC faculty who complete "Train the Trainer" for BTT 101 (10 QCC)

TASK/TIMELINE CHART FOR PROPOSED DIVERSITY IN STEM PROJECT

Starting Date	Key Activities/ Outcome Addressed	Who is Responsible	Target Date	Revised Target Date	Completion Date	Explanation of Status/Activities Planned
12/15/18	**WSU High School Programs**	**Mary Jo Marion**	**12/15/18**		**6/30/19**	**High school students will be recruited in December and take college classes from Jan-May. Industry panels will take place April-May. Middle school girls will received services from Nov through June. Family Academies to take place in April and May. Summer STEM camp in June.**
12/15/18	**WSU Career Advising and Workforce Preparation**	**Roberta Kyle**	**12/15/18**		**6/15/19**	**Guide to credentialing will be published in April. Advisor will work with 25 foreign-born professionals from Nov-May. LEI's ESL students to receive workforce prep in Dec and again March-June.**
01/06/19	**WSU Post-Secondary Success for Emerging Stem Professionals**	**Linda Larrivee**	**01/06/19**		**6/15/19**	**PALS program will recruit in Dec and activate from Jan-May. Scholarships will be distributed in May as credit toward fall semester.**
12/15/18	**QCC Early College Programming & Post-Secondary Teacher Development**	**Chris Hebert Kathy Rentsch**	**12/15/18**		**6/30/19**	**Recruit WPS students in biotechnology pathway programs in Dec. Deliver 4 Early College classes needed for students in biotechnology pathways January-June. Design & deliver professional development workshops in Math IV curriculum to 12 WPS teachers in March-June.**
12/15/18	**Increase QCC Supplemental Instruction & Student Completion**	**Ben Benton Bryan Brophy-Baerman Michelle Tufau Kathy Rentsch**	**12/15/18**		**6/30/19**	**Hire staff in Dec and increase supplemental instruction in STEM programs in labs & tutor center January-June. Award scholarships to at risk students due to financial need**
12/15/18	**Expand QCC Biotechnology Industry Engagement**	**Leslie Horton Gabe Santner Ben Benton Kathy Rentsch**	**12/15/18**		**6/30/19**	**Hire outreach specialist in Dec. to secure biotechnology company partners in Jan-June to provide student mentors, host industry tours, participate in industry panel. New mentors trained as available and begin mentoring students. Panels and tours held Apr-May.**

Starting Date	Key Activities/ Outcome Addressed	Who is Responsible	Target Date	Revised Target Date	Completion Date	Explanation of Status/Activities Planned
12/15/18	**Expand Access & Institutional Capacity for Biotechnology Curriculum**	**Carol King Ben Benton Leslie Horton Kathy Rentsch**	**12/15/18**		**6/30/19**	**Biotechnology/biomedical/STEM curriculum for Adult Community Learning Center and Biotechnology "Train the Trainer" for instructors both piloted with students by June**